

**Notice of Allowability**

Application No.

10/772,299

Applicant(s)

KAGAWA ET AL.

Examiner

Art Unit

Sow-Fun Hon

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to the amendment filed 7/31/06.
2.  The allowed claim(s) is/are 1-17.
3.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All
  - b)  Some\*
  - c)  None of the:
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. 09/512,475.
  3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
    - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application
6.  Interview Summary (PTO-413),  
Paper No./Mail Date 9/6/06.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other See Continuation Sheet.

Continuation of Attachment(s) 9. Other: The drawings filed 02/06/04 are accepted by the examiner.

**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Melvin Kraus on September 6, 2006.

The application has been amended as follows:

2. Claims 18-22 are cancelled.
3. Replace claim 1 with - - A liquid crystal display device comprising: a pair of substrates; a liquid crystal layer filled between said pair of substrates; and a plurality of pixel electrodes and common electrodes, both of said pixel electrodes and said common electrodes being supported on one of said pair of substrates, for supplying an electric field to said liquid crystal layer, said electric field having a component which extends substantially in parallel to said one of said pair of substrates; wherein the liquid crystal display device is configured so that a response time between a lowest brightness level and a highest brightness level is less than 16.7 ms; and wherein said liquid crystal layer contains a range of from 40% weight percentage to less than 100% weight percentage of a constituent component with a dielectric anisotropy of  $0 < |\Delta\epsilon| \leq 1$ . - -
4. Replace claim 2 with - - A liquid crystal display device comprising: a pair of substrates; a liquid crystal layer filled between said pair of substrates; and a plurality of pixel electrodes and common electrodes, both of said pixel electrodes and said

common electrodes being supported on one of said pair of substrates, for supplying an electric field to said liquid crystal layer, said electric field having a component which extends substantially in parallel to said one of said pair of substrates; wherein the liquid crystal display device is configured so that a response time between a lowest brightness level and a highest brightness level is less than 16.7 ms; and wherein said liquid crystal layer contains a range from 40% weight percentage to no more than 90% weight percentage of a constituent component with a dielectric anisotropy of  $0 < |\Delta\epsilon| \leq 1$ . - -

5. Replace claim 3 with - - A liquid crystal display device comprising: a pair of substrates; a liquid crystal layer disposed between said pair of substrates; and a plurality of pixel electrodes and common electrodes, both of said pixel electrodes and said common electrodes being supported on one of said pair of substrates, for supplying an electric field to said liquid crystal layer, said electric field having a component which extends substantially in parallel to said one of said pair of substrates; wherein the liquid crystal display device is configured so that response time between gray levels is less than 16.7 ms; and wherein said liquid crystal layer contains a range from 40% weight percentage to less than 100% weight percentage of a constituent component with a dielectric anisotropy of  $0 < |\Delta\epsilon| \leq 1$ . - -

6. Replace claim 4 with - - A liquid crystal display device comprising: pair of substrates; a liquid crystal layer disposed between said pair of substrates; and a plurality of pixel electrodes and common electrodes, both of said pixel electrodes and said common electrodes being supported on one of said pair of substrates, for supplying an electric field to said liquid crystal layer, said electric field having a

component which extends substantially in parallel to said one of said pair of substrates; wherein the liquid crystal display device is configured so that response time between gray levels is less than 16.7 ms; and wherein said liquid crystal layer contains a range from 40% weight to no more than 90% weight percentage of a constituent component with a dielectric anisotropy of  $0 < |\Delta\epsilon| \leq 1$ . - -

7. Replace claim 5 with - - A liquid crystal display device comprising: a pair of substrates; a liquid crystal layer disposed between said pair of substrates; and a plurality of pixel electrodes and common electrodes, both of said pixel electrodes and said common electrodes being supported on one of said pair of substrates, for supplying an electric field to said liquid crystal layer, said electric field having a component which extends substantially in parallel to said one of said pair of substrates; wherein said liquid crystal layer has a birefringence  $\Delta n$  and a dielectric anisotropy  $\Delta\epsilon$  which satisfy the condition  $\Delta n/\sqrt{\Delta\epsilon} \leq 5.5 \times 10^{-2}$ ; and wherein said liquid crystal layer contains a range from 40% weight percentage to less than 100% weight percentage of a constituent component with a dielectric anisotropy of  $0 < |\Delta\epsilon| \leq 1$ . - -

8. Specification: Page 13, substitute lines 19-21 with - - is a schematic diagram of (a) one pixel part of the liquid crystal display device according to the present invention showing (b) the plan view and (c) the cross-sectional view of the - -

9. Specification: Page 14, substitute lines 1-7 with - - Fig. 6 is a schematic diagram of (a) one pixel part of the liquid crystal display device according to the present invention showing (b) the plan view and (c) the cross-sectional view of the placement of the set of electrodes, insulating layers, and alignment layer. Fig. 7 is a schematic

diagram of (a) one pixel part of the liquid crystal display according to the present invention showing (b) the plan view and (c) the cross- - -

10. The following is an examiner's statement of reasons for allowance.

The closest cited prior art of record US 5,986,735 fails to teach or suggest, even in view of US 5,414,440, US 5,132,815 and EP 0344753A2, the combination of a liquid crystal display device comprising: a pair of substrates; a liquid crystal layer disposed between said pair of substrates; and a plurality of pixel electrodes and common electrodes, both of said pixel electrodes and said common electrodes being supported on one of said pair of substrates, for supplying an electric field to said liquid crystal layer, said electric field having a component which extends substantially in parallel to said one of said pair of substrates; wherein said liquid crystal layer contains a range from 40% weight percentage to less than 100% weight percentage of a constituent component with a dielectric anisotropy of  $0 < |\Delta\epsilon| \leq 1$ . See Applicant's arguments in the remarks section dated 07/31/06.

The terminal disclaimer has obviated any obviousness-type double patenting issues over US 6,423,385.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Hon.  
Sow-Fun Hon  
09/06/06

  
RENA DYE  
SUPERVISORY PATENT EXAMINER

  
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